In the Claims:

Please amend the claims as follows:

1. (currently amended) A method for reducing combustion residues in exhaust gases generated from the combustion of a fuel, ~~comprising~~ including treating the exhaust gases before releasing them in the environment,

~~characterized in that~~wherein:

said treating the exhaust gases ~~comprises~~ includes ~~performing~~ a post-combustion process performed by:

feeding the exhaust gases to a radiant combustion reactor including a radiant combustion chamber and means adapted to supply energy to the radiant combustion chamber, the radiant combustion reactor being adapted to transform the supplied energy into radiant energy radiating within the radiant combustion chamber; and

submitting the exhaust gases to the radiant energy in ~~a~~the radiant combustion reactor ~~(125)~~, ~~so as~~ to ~~increase~~ raise ~~a~~ the temperature of ~~the~~ exhaust gases ~~to~~ till a value sufficient to cause self-combustion.

2. (currently amended) The method according to claim 1, in which within the radiant combustion reactor the temperature of the exhaust gases is increased to a value in the range from approximately 250 °C to approximately 1800 °C, particularly from approximately 400 °C to approximately 1400 °C, preferably from approximately 900 °C to approximately 1200 °C and, even more preferably, from approximately 900 °C to approximately 1100 °C.

3. (currently amended) The method according to claim 1 ~~or 2~~, further comprising submitting the exhaust gases to filtering ~~(130a,130b)~~ so as to substantially eliminate residual uncombusted dust and particulate material present in the exhaust gases, said filtering being performed at least after the post-combustion.

4. (original) The method according to claim 3, in which said post-combustion process is carried out in at least two stages, the method comprising submitting the exhaust gases to said filtering also between the two stages.

5. (currently amended) The method according to claim 3 ~~or 4~~, in which said filtering includes one or more among ~~is~~ an active and an inactive filtering.

6. (currently amended) The method according to ~~any one of the preceding~~ claims 1, further ~~comprising~~ including pre-heating ~~(120)~~ the exhaust gases before performing the post-combustion process.

7. (currently amended) The method according to claim 6 ~~when depending on claim 2~~, in which said pre-heating the exhaust gases ~~comprises~~ includes bringing the exhaust gases~~a~~ temperature ~~of the exhaust gases~~ over approximately 400 °C, preferably in the range from approximately 400 °C to approximately 700 °C.

8. (currently amended) The method according to claim 7, in which said pre-heating the exhaust gases ~~comprises~~ includes accelerating and compressing ~~(123,121)~~ the exhaust gases.

9. (currently amended) The method according to ~~any one of the preceding~~ claims 1, further ~~comprising~~ including lowering ~~a temperature (135) of~~ the exhaust gases temperature after performing the post-combustion process before releasing the post-combusted exhaust gases in the environment.

10. (currently amended) The method according to claim 9, in which the temperature of the post-combusted exhaust gases is lowered to a value in the range from approximately ~~10~~50 °C to approximately 150 °C.

11. (currently amended) The method according to claim ~~9 or 10 as depending on claim~~ 3, in which ~~said lowering the temperature of the post-combusted exhaust gases is performed~~ after said filtering the temperature of the post-combusted exhaust gases is lowered to a value in the range from approximately 50 °C to approximately 150 °C.

12. (currently amended) The method according to ~~any one of~~ claims ~~9, 10 or 11 as depending on claim 6~~, in which said lowering the temperature of the exhaust gases ~~comprises~~includes:

providing a heat exchanger;

causing the post-combusted gases pass through the heat exchanger;

causing the exhaust gases to be post-combusted invest the heat exchanger, in order to ~~-~~exploit~~ing a~~ heat released by ~~the~~ post-combusted exhaust gases for pre-heating ~~of~~ the exhaust gases to be post-combusted.

13. (currently amended) The method according to ~~any one of the preceding~~ claim~~s~~ 1, in which the post-combustion process is carried out continuously, with the exhaust gases to be submitted to post-combustion being in substantially contiguity relationship with the post-combusted exhaust gases within the radiant combustion reactor.

14. (currently amended) The method according to ~~any one of~~ claim~~s~~ 1 ~~to 12~~, in which the post-combustion process is carried out partially continuously, with the exhaust gases to be submitted to post-combustion being separated from the post-combusted exhaust gases within the radiant combustion reactor ~~of~~ at a time of the order of 10^{-6} to 10^{-2} seconds.

15. (currently amended) The method according to ~~any one of~~ claim~~s~~ 1 ~~to 12~~, in which the post-combustion process is carried out discontinuously, with the exhaust gases already submitted to post-combustion being kept substantially separated from the exhaust gases to be submitted to post-combustion.

16. (currently amended) An apparatus ~~(100)~~ for reducing combustion residues, particularly pollutants, in exhaust gases generated from the combustion of ~~a~~ fuel, ~~comprising~~ including a system ~~means~~ for the treatment~~ing~~ ~~the~~ of exhaust gases before releasing them in the environment,

~~characterized in that~~wherein

said exhaust gases treatment~~ing~~ system ~~means~~ ~~comprises~~ includes a radiant combustion reactor ~~(125)~~ wherein the exhaust gases ~~are caused to~~ pass through, ~~so as~~in order to be submitted to radiant energy for ~~increasing~~ raising~~a temperature of~~ the exhaust gases temperature to a value sufficient to cause self-combustion, thereby a post-combustion process of the exhaust gases is performed before releasing them in the environment.

17. (currently amended) The apparatus according to claim 16, in which within the radiant combustion reactor ~~the temperature of~~ the exhaust gases temperature is increased to a value in the range from approximately 250 °C to approximately 1800 °C, particularly from approximately 400 °C to approximately 1400 °C, preferably from approximately 900 °C to approximately 1200 °C, more preferably from approximately 900 °C to approximately 1100 °C.

18. (currently amended) The apparatus according to claim 16 ~~or 17~~, further ~~comprising~~ including a filtering ~~means~~device ~~(130a,130b)~~ adapted to substantially eliminate residual uncombusted dust and particulate material present in the exhaust gases, said filtering ~~means~~device ~~(130b)~~ being located~~arranged~~ at least downstream the radiant combustion reactor.

19. (currently amended) The apparatus according to claim 18, in which said radiant combustion reactor ~~comprises~~ includes ~~at least~~ two chambers at the end, one downstream the other, the filtering ~~means~~device ~~(130a)~~ being additionally located~~arranged~~ between the two chambers.

20. (currently amended) The apparatus according to claim 18 ~~or 19~~, in which the filtering ~~means~~device ~~comprise~~ includes one or more among active filters and inactive filters, particularly selective filters based on ceramic and zeolite materials.

21. (currently amended) The apparatus according to any one of claims 16 ~~to~~ ~~20~~, further ~~comprising~~ including a pre-heating chamber ~~(120)~~, upstream the radiant combustion reactor, for pre-heating the exhaust gases before performing the post-combustion process.

22. (currently amended) The apparatus according to claim 21 ~~when depending on claim 17~~, in which in said pre-heating chamber the exhaust gases are pre-heated to a temperature over approximately 400 °C, preferably in the range from approximately 400 °C to approximately 700 °C.

23. (currently amended) The apparatus according to claim 21, in which said pre-heating chamber includes a device~~means~~ ~~(121)~~ for accelerating and compressing the exhaust gases, particularly one or more among a fan or an arrangement of fans, a turbine, a turbocompressor.

24. (currently amended) The apparatus according to claim 23, in which said pre-heating chamber further ~~comprises~~ includes a Venturi tube ~~(123)~~ for further accelerating the exhaust gases.

25. (currently amended) The apparatus according to ~~any one of~~ claims 16 ~~to~~ ~~24~~, further ~~comprising~~ including a heat-exchange device~~arrangement~~ ~~(135)~~ downstream the radiant combustion reactor, for lowering ~~a temperature of~~ the exhaust gases temperature after performing the post-combustion process before releasing the post-combusted exhaust gases in the environment.

26. (currently amended) The apparatus according to claim 25, in which the heat-exchange device~~arrangement~~ is adapted to lower~~ing~~ the temperature of the post-combusted exhaust gases to a value in the range from approximately ~~10~~50 °C to approximately 150 °C.

27. (currently amended) The apparatus according to claim 25 ~~or 26 as depending on claim 18~~, in which said heat-exchange ~~arrangement~~ device is placed downstream said filtering ~~means~~device.

28. (currently amended) The apparatus according to ~~any one of~~ claims 25~~, 26 or 27 as depending on claim 21~~, in which said heat-exchange ~~arrangement~~ device is operatively coupled ~~to~~ with the pre-heating chamber, so that ~~a~~ the heat released by the post-combusted exhaust gases in the heat-exchange ~~arrangement~~ device is exploited for ~~the~~ pre-heating the exhaust gases in the pre-heating chamber.

29. (currently amended) The apparatus according to ~~any one of~~ claims 16 ~~to~~ ~~28~~, further ~~comprising~~ including a control unit ~~(140)~~, particularly an electronic, programmable control unit, for the ~~controlling the~~ post-combustion process control.

30. (currently amended) The apparatus according to ~~any one of~~ claims ~~16 to 29~~, in which the radiant combustion chamber ~~comprises~~ includes an enclosed path for the exhaust gases, and a heating ~~means~~device associated with the enclosed path for heating walls ~~thereof~~.

31. (currently amended) The apparatus according to claim 30, in which said heating ~~means~~system ~~comprises~~ includes Joule-effect heaters ~~(305a,305b;405a,405c,405d;505a-d;607;707;810;910a,b)~~.

32. (currently amended) The apparatus according to claim 31, in which said enclosed path ~~comprises~~ includes an ~~arrangement~~ system of ducts ~~(300;400;500;600;700;800) comprising~~ including at least one duct for the passage of the exhaust gases, and having associated therewith electrical resistors for heating the duct walls.

33. (currently amended) The apparatus according to claim 32, in which said arrangement of ducts comprises at least one among a substantially "U"-shaped ~~(300)~~, a substantially double "U"-shaped ~~(400)~~ or a substantially "W"-shaped ~~(500)~~ arrangement of ducts, at least one of said ducts having wound around it at least one spiral resistor controllably powered for heating the duct walls.

34. (currently amended) The apparatus according to claim 31, comprising an arrangement of ducts associated with at least one heat radiating panel ~~(605a,605b;705a)~~, having embedded therewith a Joule-effect heat generator ~~(607;707)~~.

35. (currently amended) The apparatus according to claim 30, in which said heating ~~means~~ system ~~comprises~~ includes an optical radiation source ~~(1020;1120;1220;1320)~~, particularly a laser.

36. (original) The apparatus according to claim 35, in which said optical radiation source comprises at least one laser.

37. (currently amended) The apparatus according to claim 36, in which ~~said~~ at least one said laser is operated in pulsed mode.

38. (currently amended) The apparatus according to claim 36 ~~or 37~~, further comprising an optical radiation reflecting/deflecting ~~means~~ arrangement ~~(1007;1105;1200a)~~ for reflecting/deflecting the optical radiation onto the enclosed path.

39. (currently amended) The apparatus according to ~~any one of~~ claims 16 ~~to~~ ~~38~~, in which a gases separation ~~means~~system ~~(1405;1505;1605)~~ is~~are~~ provided within the radiant combustion reactor for determining a separation of different parts of the exhaust gases undergoing different phases of the post-combustion process.

40. (currently amended) The apparatus according to claim 39, in which said gases ~~means~~ separation system ~~comprise~~ includes a rotor rotatably arranged inside the radiant combustion reactor.

41. (currently amended) A system ~~comprising~~ including a fuel combustion apparatus ~~(105)~~ in which a fuel combustion process ~~of a fuel~~ takes place, and an apparatus ~~(100)~~ for treating exhaust gases ~~originating~~ originated ~~from~~ by the combustion process, wherein said apparatus for treating the exhaust gases ~~is realized according to any one of the claims 16 to 40~~includes a radiant combustion reactor wherein the exhaust gases are caused to pass through, ~~so as~~ to be submitted to radiant energy for increasing ~~a temperature of~~ the exhaust gases temperature to a value sufficient to cause self-combustion, thereby a post-combustion process of the exhaust gases is performed before releasing them in the environment.

42. (original) The system according to claim 41, in which said fuel combustion apparatus is an internal combustion engine, particularly a vehicle engine.

43. (currently amended) The system according to claim 41, in which said fuel combustion apparatus is a burner of ~~a~~ heating system.

44. (new) The system according to claim 41, in which said fuel combustion apparatus is a steam boiler for the production of electrical power.